



# Chesapeake Bay Preservation

## 2010 Comprehensive Plan Amendment

City of Hampton  
Virginia

Adopted by City Council  
May 22, 2002



**Chesapeake Bay Preservation  
City of Hampton  
Amendment to the 2010 Comprehensive Plan**

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## Chesapeake Bay Preservation – Background and Policy Discussion

### Background

This document is an amendment to Hampton's 2010 Comprehensive Plan that will supplement other comprehensive plan policies and City programs in order to fully meet the requirements of Virginia's Chesapeake Bay Preservation Act and regulations. This amendment will replace the "Chesapeake Bay Water Quality" section of the 2010 plan adopted by City Council on 12/13/89. Existing policies in the 2010 plan that address Chesapeake Bay preservation are listed in Appendix A. New comprehensive plan policies are listed in the Chesapeake Bay Preservation Policies section of this plan amendment beginning on page ten.

The Chesapeake Bay Preservation Act recognizes the important relationship between land development and water quality. Land development affects water quality in two primary ways. Development can have an affect on water quality by altering environmentally sensitive features in the landscape that naturally protect water quality such as the wetlands and vegetated areas adjacent to the shoreline. Land development also affects water quality by increasing the amount of storm water that drains into local waterways. Storm water carries a variety of sediments, nutrients, and other types of pollution into local waterways.

The Bay Act and regulations identify specific requirements that must be included in local comprehensive plans in order to protect the water quality of the Chesapeake Bay. The regulations require policies that address the five topic areas listed below:

- ◆ **Physical Constraints to Development** – policies that identify and protect environmentally sensitive features, such as wetlands, floodplains and buffer areas, from the impacts of land development.
- ◆ **Water Quality Improvements through Redevelopment** – policies that encourage the protection and improvement of water quality as land is redeveloped (e.g. storm water management).
- ◆ **Protection of Potable Water Supply** – policies that protect local sources of drinking water.
- ◆ **Shoreline Erosion** – policies that recognize the impact of shoreline erosion on land development and that minimize the water quality impacts of erosion.
- ◆ **Shoreline and Water Access** – policies that promote shoreline and water access that is sensitive to water quality.

The City's comprehensive plan policies to meet the requirements of the Chesapeake Bay Preservation Act are also integrated with other State and Federal water quality regulations and programs (see Appendix B and C):

- ◆ **Wetland Regulations**

- ◆ Clean Water Act Regulations on Storm Water Discharges
- ◆ 2000 Chesapeake Bay Agreement

Hampton's Chesapeake Bay Preservation policies are also integrated with the economic and community development strategies in the 1998 Hampton Strategic Plan and the 2010 Comprehensive Plan.

(Note: Definitions of words and terms shown in *italics* are listed in Appendix D.)

### Physical Constraints to Development

Much of the land in Hampton has already been developed. Current estimates indicate that less than 10% of the City's land is vacant and suitable for new development. Over 95% of the households in the City are served by public water and sewer systems. Approximately 34% of the City is covered with *impervious surfaces* (buildings, roads, and parking areas). Most of the vacant, developable land is zoned for residential or commercial development and is served by the City's utility and road network. The relatively small amount of land for new development and its suitability for development indicates that physical constraints will not be a significant factor affecting the pattern or the water quality impacts of new development.

While much of Hampton is already developed, the City has a number of sensitive environmental features which will continue to contribute to water quality protection. These features include: tidal wetlands, non-tidal wetlands, floodplains, coastal primary sand dunes and beaches, lakes, ponds and other surface waters, and vegetated buffer areas along the shoreline. The location and value of environmentally sensitive areas are identified and discussed in the 2010 Comprehensive Plan. Policies to protect these features from development are also included in the Plan. There are also a number of existing City ordinances and programs in place to ensure that new development provides for the long term protection of these features: CBPA zoning, flood zone requirements, storm water management, environmental education programs, and erosion and sediment control requirements.

Hampton's inventory of environmentally sensitive features includes the areas in the City that meet the definition of Resource Protection Area (RPA) and Resource Management Area (RMA). Resource Protection Areas include tidal and connected non-tidal wetlands, tidal shores, and a one hundred foot vegetated buffer area adjacent to all water bodies with perennial flow. Resource Protection Areas perform natural pollution control functions. Biological activities in these areas are specially adapted for controlling pollution from storm water run-off by trapping sediment and recycling nutrients and other sources of pollution. Resource Management Areas include an additional one hundred foot distance from the Resource Protection Area boundary. Resource Management Areas also help to control pollution from storm water. These areas may include highly erodible soils, highly permeable areas, floodplains and wetlands which have a direct relationship to surface and ground water quality. Improper development in these areas can have detrimental effects on water quality.

No new Chesapeake Bay Preservation policies regarding physical constraints to development are recommended with this plan amendment for the following reasons:

- ◆ The small amount of vacant land in the City that is suitable for new development.
- ◆ Physical constraints to development are addressed by existing policies, regulations and programs.
- ◆ Water quality improvement is more appropriately addressed through redevelopment due to the extent of existing development in the City.

### Water Quality Improvements Through Redevelopment

In urban areas such as Hampton, a significant amount of land development is in the form of redevelopment and *in-fill development*. In-fill development includes both residential and commercial development within and in-between existing subdivisions and commercial and industrial development at existing parks and centers. Candidates for larger scale redevelopment projects include older commercial and industrial centers as well as residential areas and commercial corridors.

Existing development has created a relatively high percentage of impervious surface area (buildings and parking). Highly impervious watersheds have relatively large volumes of storm water run-off. About 90% of the storm water run-off in urban watersheds is collected into ditches and pipes before entering local waterways. Conversely, only about 10% of the run-off flows across a shoreline buffer before entering waterways. (Tom Schueler, "The Architecture of Stream Buffers", 1995.) It is estimated that the land area in Hampton is about 34% impervious. The following table provides some general guidance for characterizing and managing water quality based on the percentages of impervious surface area.

	Urban Stream Classifications		
	Stressed (0 to 10% Impervious)	Impacted (11 to 25% Impervious)	Degraded (26 to 100% Impervious)
Channel Stability	Stable.	Unstable.	Highly unstable.
Water Quality	Good.	Fair.	Fair-Poor.
Stream Biodiversity	Good – Excellent.	Fair-Good.	Poor.
Land Use Controls	Impervious surface area limits.	Impervious surface area limits.	Additional infill and redevelopment encouraged.
Development Rights	Transferred out.	No change.	Transferred in.
Riparian Buffers	Widest buffer network.	Average buffer width.	Greenways.

Source: Adopted from "The Importance of Imperviousness", *Watershed Protection Techniques, Volume 1, Number 3, Fall 1994, Center for Watershed Protection. (Emphasis added.)*

Redevelopment presents an important opportunity to improve water quality and to protect the environment. In particular, redevelopment can result in a reduction of non-point source pollution from storm water run-off and the reestablishment of vegetated buffer areas where possible. The primary tools for achieving water quality protection through redevelopment are the Chesapeake Bay Preservation Area zoning requirements and the City's storm water management program.

Water quality protection measures through redevelopment must also be successfully integrated with the City's other environmental protection policies and related community development goals. Solid and hazardous waste management, protection of groundwater, *brownfields* redevelopment, promotion of *environmental justice*, public health concerns and the protection of air quality and natural features are directly affected by water quality protection policies. The important related economic and community development goals include: conservation of neighborhoods and commercial areas, protection of real estate tax revenues, and the City's targeted redevelopment and in-fill projects.

New Chesapeake Bay Preservation policies to address water quality protection through redevelopment are identified in the Chesapeake Bay Preservation Policies section beginning on page ten.

#### Protection of Potable Water Supply

The most common threats to drinking water sources are identified below:

- ◆ **Inefficient or Failing Septic Systems** – aging and poorly maintained on-site sewage disposal systems can threaten ground and surface waters.
- ◆ **Inefficient or Failing Storm Water Facilities** - improperly designed, installed or poorly maintained storm water management facilities (storm sewers, retention ponds, etc.) can threaten ground and surface waters.
- ◆ **Leaking Underground Storage Tanks** – tanks containing hazardous materials or other contaminants are a common source of water pollution. DEQ regulates underground storage tanks.
- ◆ **Leaky Landfills** – liquid wastes from landfills may contain contaminants that could pollute waterways. DEQ regulates landfills to prevent water pollution.
- ◆ **Abandoned Wells** – wells that have not been properly closed can provide a connection for contaminants to ground water sources.
- ◆ **Hazardous Materials and Waste Sites** – improperly stored, treated, transported, or disposed materials can pollute local waters.

- ◆ **Pesticides and Fertilizers** – improperly applied fertilizers and pesticides can pollute both ground and surface waters.
- ◆ **Saltwater Intrusion** – increased groundwater withdrawals may result in the intrusion of salt or brackish water to the fresh water aquifers.
- ◆ **Point Source Discharges** – many industrial, commercial, and waste water discharges require DEQ permits to prevent water pollution.
- ◆ **Non-Point Source Discharges** – pollution contained in storm water runoff includes sediment from construction sites, metals and petroleum from streets and parking areas, illegal dumping, and *inflow and infiltration* into the sanitary sewer system.

(See a map of potential threats to water quality on page thirteen.)

The major source of drinking water in Hampton is surface water reservoirs. These reservoirs are located outside of Hampton city limits and they are owned and managed by the City of Newport News Waterworks Department. A recent (November 2000) water needs assessment for the lower Peninsula indicated the need for additional water supplies by 2010. The communities of the lower Peninsula and the Newport News Waterworks Department are working to expand the region's water supply. The City participates in water conservation programs through the Newport News Waterworks Department and the Hampton Roads Planning District Commission (HRPDC). Hampton City Council adopted a resolution in September 1995 agreeing to support the water conservation measures deemed appropriate by the Newport News Waterworks Department. The City participates in the ongoing activities of the Hampton Roads Water Efficiency Team (HR Wet).

A portion of the watershed for the Big Bethel Reservoir is located in Hampton. This reservoir is owned by the United States government and provides drinking water to Langley Air Force Base and Fort Monroe. The importance of protecting the water quality of the Big Bethel Reservoir is noted in the 2010 Comprehensive Plan.

Continued regional cooperation is essential to the long term protection of water supplies. Regional cooperation is encouraged through the Regional Directors of Utilities, Storm Water Management, and Chesapeake Bay Committees of the Hampton Roads Planning District Commission. Regional cooperation resulted in the publication of a report, Regional Water Supply Watershed Management in Hampton Roads (HRPDC, 1997), the formulation of a Model Water Supply Watershed Management Ordinance, and the adoption of "Water Supply Watershed Management Principles" by the HRPDC in 1997. In addition, potential pollution threats in the watersheds of water supply reservoirs have been identified through the Virginia Source Water Assessment Program (SWAP), conducted in the region through the HRPDC.

Groundwater-surface water interaction requires the protection of groundwater resources for overall water quality protection. In the coastal plain, groundwater and surface water interaction occurs primarily within the surficial or water table aquifer. The use of this aquifer for drinking water in Hampton is very limited. State and regional agencies are in the best position to protect



deeper groundwater resources. Currently, the state has a number of programs that address water supply protection in the deep groundwater aquifers. At the regional level, the Cooperative Regional Ground Water Management Program, administered by the HRPDC, undertakes several initiatives including the Regional Ground Water Mitigation Program, regional ground water modeling, ground water studies, technical assistance, and ground water education.

The City of Hampton has the most influence over its shallow ground water aquifer, located a few feet below the surface. The shallow ground water aquifer can be directly affected by pollutants that are discharged or spilled onto the surface of the ground and infiltrate into the soil. In turn, over relatively long time periods, contaminants in the shallow ground water can continue to move downward into the deeper aquifers or move horizontally until they are discharged into local waterways. Because of the relatively flat topography and high level of development in Hampton, identifying the locations of recharge areas for the shallow ground water aquifer is difficult and has not been studied.

As noted above, many potable water supply protection issues are addressed by programs and regulations at State, Federal and regional levels of government. Hampton's influence on protecting potable water supply is primarily found in the following existing program areas: storm water management, environmental education, participation in regional initiatives, and maintenance of the sanitary sewer collection system. New policies to address protection of potable water are identified in the Chesapeake Bay Preservation Policies section beginning on page eleven.

### Shoreline Erosion

Shoreline erosion affects land use and water quality in the following ways:

- ◆ Uncontrolled moderate to severe rates of shoreline erosion (1 to 3 feet per year or more) can affect decisions about how the adjacent land is developed and where structures are placed relative to the eroding shoreline.
- ◆ Sedimentation from shoreline erosion can degrade the aquatic environment and water quality.
- ◆ The methods to control shoreline erosion have different effects on the near shore environment and water quality. Vegetative shoreline erosion control methods, such as creating a wetland, are preferable in some locations to structural shoreline erosion controls.
- ◆ Increased development creates higher volumes and higher velocity flows of storm water runoff which can cause erosion of ditch banks and adjacent properties.

Available data indicates that shoreline erosion is most significant along the City's Chesapeake Bay shoreline. The remainder of the City's shoreline (about 87%) is classified as being "stable" or having "slight erosion". A portion of the shoreline on the Chesapeake Bay is managed as a public recreational beach. Shoreline erosion in this area is being addressed through the City's



Beach Management Plan. The City is also working with the Army Corps of Engineers on a Chesapeake Bay Shoreline Protection Study.

While the Corps study, the Beach Management Plan and the 2010 Comprehensive Plan address erosion along the Chesapeake Bay shoreline, the Chesapeake Bay Preservation Act requires local governments to have a citywide shoreline erosion policy that specifies where structural controls should be avoided. When proposals are reviewed by the City for shoreline stabilization, applicants should be encouraged, where appropriate, to replace vertical structures, such as bulkheads, which can cause wetland loss, with vegetative solutions or revetments.

Additional policies to address water quality problems that may be caused by shoreline erosion are identified in the Chesapeake Bay Preservation Policies section beginning on page eleven.

### Shoreline and Water Access

The Urban Design chapter of the 2010 Comprehensive Plan identifies a number of policies that stress the importance of water and water access to Hampton's historical and future development. The Community Facilities chapter of the 2010 Plan and the Parks and Recreation 2020 Master Plan also identify a number of recommendations for the maintenance, improvement, and expansion of shoreline and water access facilities.

Shoreline access facilities can directly influence water quality because they are in sensitive environmental areas and they control the types of activities occurring in waterways. To address this issue, the Chesapeake Bay Preservation Act requires local comprehensive plans to consider the locations of different types of future access facilities and their potential impacts on water quality. This requires identifying sensitive aquatic resources, flushing characteristics, and the bathymetry of different waterways in the City. Identification and analysis of these features for the Hampton Roads region is included in the Regional Shoreline Element of Comprehensive Plans, prepared by the HRPDC.

Shoreline or waterfront land use in Hampton is significantly influenced by existing or historical uses. Generally speaking, the more intensive shoreline facilities, such as marinas, should be located in areas where such facilities are already concentrated or in areas that have adjacent adequate channels and the supporting land-side infrastructure. These facilities should also be located in areas that lack sensitive aquatic resources, such as fish breeding areas, and that have good circulation to flush out pollution.

The goals and policies of the 2010 Comprehensive Plan make it clear that the City believes its economy and quality of life are dependent on physical and visual access to the water. In addition, the City recognizes that obtaining these benefits is dependent on maintaining good water quality. The 2010 Plan recognizes that any additions or enhancements to public shoreline access facilities need to be designed to minimize impacts to water quality. In addition to these policies, the Chesapeake Bay Preservation Act requires policies on the appropriate siting of marinas and on the relationship of land use to commercial and recreational fisheries.

The City of Hampton's Public Piers facility in downtown was the first facility in Virginia to be certified as a member of the State's "Clean Marina" program. This designation means that Hampton Public Piers has implemented environmental protection programs to reduce or prevent pollution of local waters. Additional policies to address water quality problems that may be caused by shoreline and water access facilities are identified in the Chesapeake Bay Preservation Policies section beginning on page twelve.

## **Chesapeake Bay Preservation Policies**

### **Physical Constraints to Development**

(No new Comprehensive Plan policies are recommended.)

### **WQ Improvements through Redevelopment**

Redevelopment of both individual sites and large project areas should attempt to re-establish trees and other forms of vegetation. Particular attention should be given to re-establishing vegetation in shoreline areas. Encourage the reestablishment of the Resource Protection Area buffer where feasible.

Work closely with community organizations and state, regional, and federal agencies to identify the potential and feasibility for clean-up and redevelopment of brownfield sites in the City.

Explore alternatives to the current site-specific BMP approach to storm water management and evaluate regional BMP approaches and BMP banking opportunities.

Identify sites for potential storm water BMP retrofits.

Work together with other levels of government and community-based organizations to encourage voluntary adoption of pollution prevention practices.

Work with the appropriate state agencies and local interest groups to evaluate and modify the Resource Protection Area and Industrial Development Area overlay zone districts in order to comply with the Chesapeake Bay Preservation Act Regulation amendments effective March 1, 2002.

Explore non-regulatory approaches for protection of the Resource Protection Area buffer, including expanded public education efforts, the use of conservation easements, and the creation of greenways.

Incorporate the following into all area redevelopment plans and neighborhood plans where applicable: area specific CBPA maps, analysis of opportunities to improve water quality through implementation of CBPA requirements, a discussion of development related water quality impacts, and identification and remediation of existing groundwater pollution sources.

Explore the expanded use of the City's GIS system to coordinate environmental protection and community development.

### Protection of Potable Water Supply

Participate in regional efforts through the Hampton Roads Planning District Commission to protect and conserve potable water supplies.

Continue implementation of programs that support Hampton's non-point source pollution reduction efforts as outlined in the City's VPDES MS4 storm water permit.

Continue to monitor the septic tank pump-out program and explore the use of criminal penalties for non-compliance.

Support education programs to promote proper septic tank maintenance and to identify the potential impacts of malfunctioning systems.

Support education programs to promote the proper use of ground-water and to identify the potential impacts of overuse.

Continue to promote "water wise" landscaping and pollution prevention practices.

Provide for the long term maintenance and upkeep of the City's sanitary sewer collection system. Continue implementation of efforts to control inflow and infiltration.

Investigate grant funding sources to be used for mapping and closing the abandoned private wells in the City.

Investigate grant funding sources to be used for identifying and implementing water conservation practices in public facilities.

Investigate grant funding sources to be used for preparing a survey of existing septic systems in the City.

### Shoreline Erosion

Protect the shorelines of public property from erosion in a cost-effective manner that preserves and enhances shoreline resources, water quality, wetlands, buffers areas, and wildlife habitat where appropriate.

Promote non-structural shoreline erosion control where appropriate. Along the City's inland waterways, vegetative forms of shoreline stabilization may be preferable and should be given first consideration over structural erosion control methods.

Promote efficient and coordinated shoreline erosion control. Encourage proper design and coordination between adjoining property owners to achieve more successful and cost-effective shoreline erosion control. Encourage applicants to obtain recommendations and design

assistance from the Shoreline Erosion Advisory Service with the Virginia Department of Conservation and Recreation.

Severe shoreline erosion along the Chesapeake Bay shoreline that is threatening the city's dunes, beaches, and wetlands should continue to be addressed through implementation of the city's Beach Management Plan and the Corps' Chesapeake Bay Shoreline Protection Study. Updates of the beach management plan should be prepared as needed.

Identify ditch banks and shorelines where buffer area restoration or expansion may be feasible. Incorporate shoreline restoration and erosion control into targeted redevelopment project areas.

#### Shoreline and Water Access

Improve and maintain public access to city waterways including marinas, boat ramps, public beaches, parks, and natural areas while minimizing impacts to water quality.

The Virginia Marine Resource Commission and Chesapeake Bay Program siting and design guidelines should be considered when designing new or expanded shoreline access facilities.

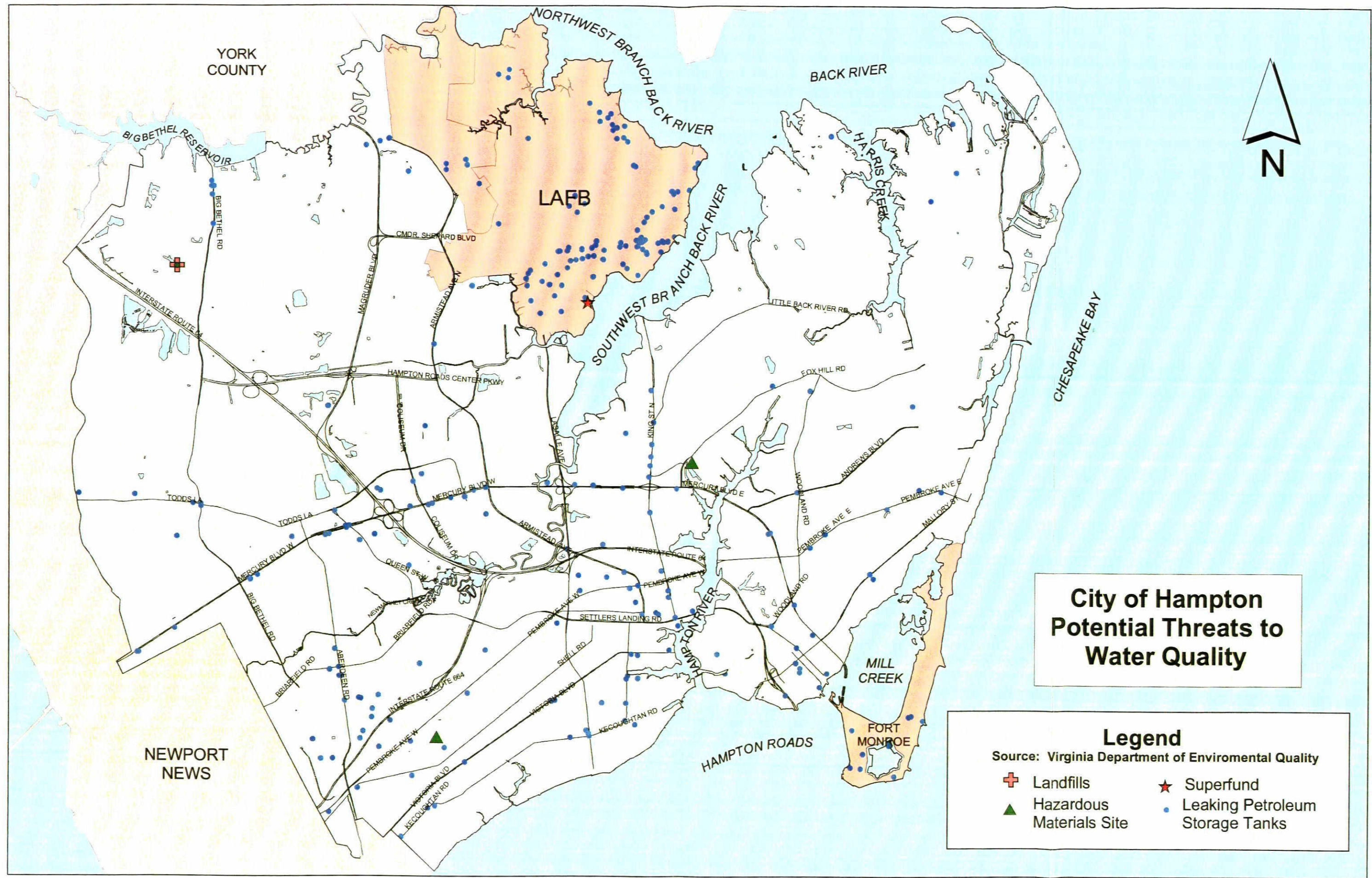
Consult the Marina Technical Advisory Program (MTAP), available through the Virginia Institute of Marine Science, on marina siting and design issues related to best management practices, water quality, and technical support for marinas.

Promote educational programs for boaters about the negative impacts of boating on water quality and provide information on alternatives to raw sewage dumping and littering, and information about maintenance of boat engines to avoid oil and fuel leakage.

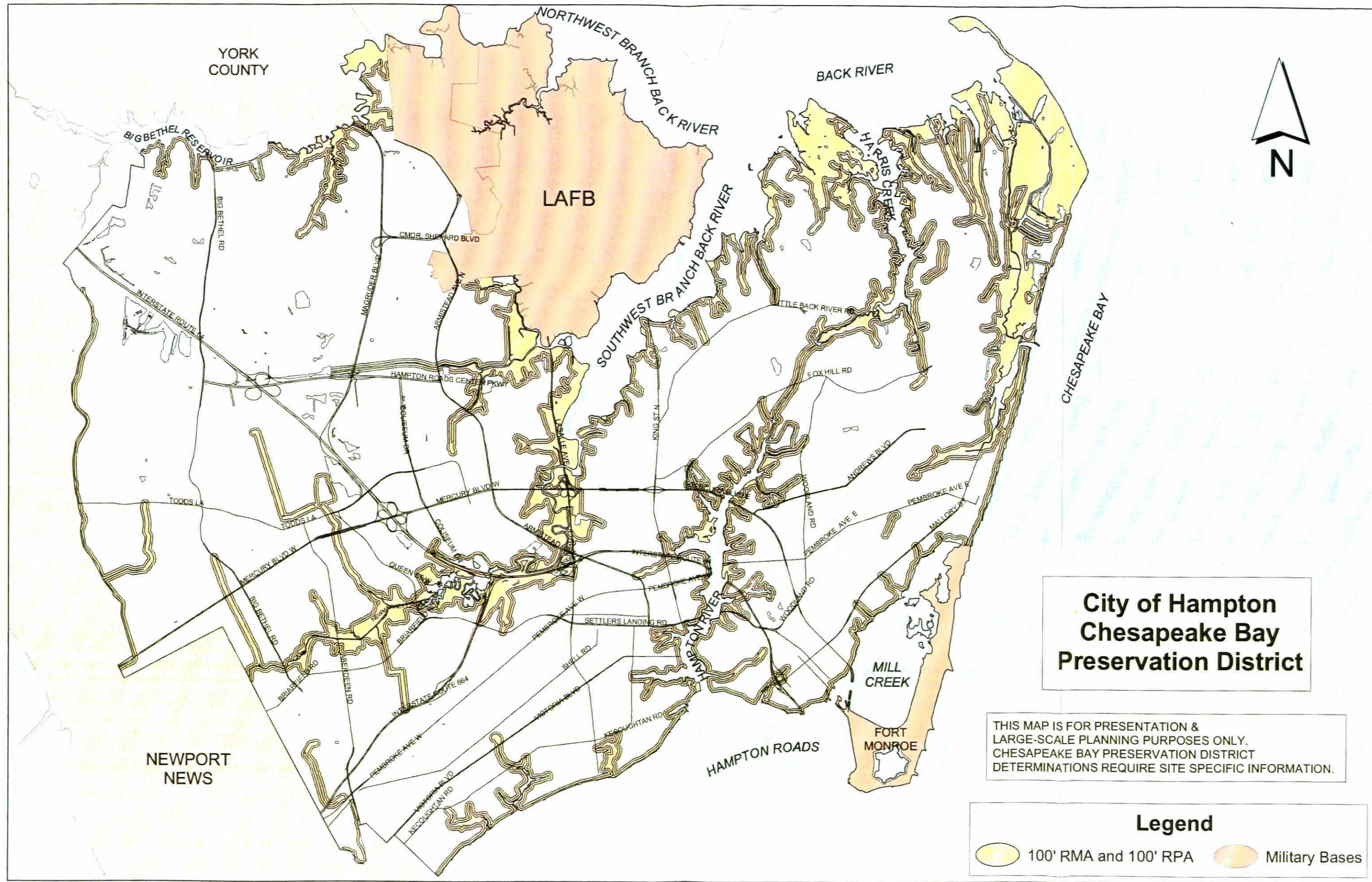
#### **Chesapeake Bay Preservation Maps**

The map of Chesapeake Bay Preservation Districts, found on page fourteen, is adopted as an integral part of this amendment to the 2010 Comprehensive Plan. The map identifies the areas in the City which are afforded special protection under the City's water quality protection policies and regulations. The map also serves as a guide for preparing the City's community development plans and programs.











**APPENDIX A**  
**2010 Comprehensive Plan**  
**Existing Policies Related to Chesapeake Bay Preservation**

**Land Use**

Goal: To promote harmonious development throughout the city by providing the most advantageous locations to accommodate the wide variety of desired uses, to stimulate economic development, to promote land use which recognizes the sensitivities of the natural environment, and to promote land uses which recognize and reinforce the image and quality of life of the many diverse areas of the city. (p. 10) *(Emphasis added.)*

**Planning Area Five Land Use Recommendation**

Special development controls should be implemented in its northernmost reaches to protect the watershed immediately adjacent to the Bethel Reservoir. This area should have low-density residential development and appropriate watershed protection easements. (p. 43)

**Grandview**

Grandview provides a unique beachfront experience: a public beach with a natural preserve. Its environmental resources deserve special protection because they are fragile and important to the Chesapeake Bay and its ecology. This demands a sensitive design which allows the public to experience and appreciate the natural preserve without harming or destroying it. (p. 47)

**Planning Area Five Land Use Recommendations**

Encourage planned unit residential development to provide diverse housing types and to permit developments sensitive to environmental constraints. (p. 48)

Acquire sufficient property to implement the public recreation objectives in the White Marsh area. (p. 48)

**Planning Area Seven Land Use Recommendations**

Encourage opportunities which enhance public access to the beachfront and other significant water bodies. (p. 55)

**Transportation**

Goal: To provide an efficient network of transportation facilities which provides effective and affordable service to a broad spectrum of the population, while recognizing the need to balance transportation necessitated by growth and development with the quality of life desired by

residents; to assist and encourage the provision of transportation facilities which service the entire region; and to encourage alternatives to the automobile. (p. 56) (*Emphasis added.*)

### **Transportation Recommendations**

To encourage the design of a collector street pattern which can be used for public transportation routes. (p. 98)

To permit reduced right-of-way and pavement widths consistent with the development proposal. (p. 99)

To support expanding and improving public transportation or mass transit. (p. 99)

To support the expanded use of public mass transit to public facilities. (p. 99)

To encourage more employers and retail businesses to support public mass transit through utilization and sponsorship. (p. 99)

To support the designation of a safer bike lane network. (p. 99)

To support and encourage pedestrian movement within key growth areas of the city, which functionally serve to efficiently move pedestrian traffic and discourage vehicle dependency. (p. 99)

To provide aesthetically appealing public waterways or promenades to increase public access to waterfront and natural areas. (p. 99)

### **Community Facilities**

The key to providing a progressive and responsive menu of community facilities is the enhancement of the school sites as the basis of the community facilities system. Likewise, in order to establish unique city-scale and regional facilities, aggressive acquisition of sites which exhibit Hampton's wide variety of natural environments is necessary. The Chesapeake Bay, the beaches, wetlands, creeks, rivers and forests all should be represented in the public inventory of recreational and cultural assets. (p. 104)

In addition to city parks, the Newmarket Basin (which runs through the center of Hampton) provides a unique opportunity to combine waterfront/wetlands conservation with some limited active pursuits. Access points along the basin would open the creek up to canoes and other small craft and establish additional conservation/observation areas for flora and fauna. Sections of Newmarket Creek are highly visible from the Interstate system. This provides a setting which demonstrates Hampton's recreational opportunities to a large number of visitors. (p. 108)

Nature preserves and conservation areas are protected from development in order to save areas of special scenic, wilderness, ecological or geological value. Because they serve an entire region,

they deserve special attention and consideration. Limited recreation activities may be permitted, including nature trails, hiking, picnicking, and wilderness camping. Support facilities such as concessions, active play areas, and comfort facilities are not normally provided. Special development controls minimize any negative development impacts. (p. 111)

Expand public access to the waterfront through property acquisition and proper development. Construct additional public boat ramp and marinas. (p. 115)

#### **Planning Area Two Community Facilities Recommendations**

Acquire access along Newmarket Creek for small craft use, with a large conservation/observation area near Bluebird Gap Farm. (p. 119)

#### **Planning Area Three Community Facilities Recommendations**

Complete acquisition and development of the Downtown waterfront park to complete the waterfront walkway already established. (p. 127)

Maintain Chesapeake Avenue as a linear scenic area. (p. 127)

Increase pleasure boat docking facilities on the Hampton River and develop another public boat ramp. (p. 127)

#### **Planning Area Five Community Facilities Recommendations**

Preserve the area immediately surrounding the Big Bethel Reservoir as a conservation area to protect the water quality and provide open space. (p. 131)

#### **Planning Area Six Community Facilities Recommendations**

The concentration of environmentally sensitive land in Area Six provides a unique opportunity for more natural pursuits. A Back River Conservation Area, located at the terminus of Harris Creek Road, would allow for passive recreation and scenic beauty. A canoe trail could be developed along Harris Creek/Back River/Long Creek connecting to Back River and Newmarket Creek. (p. 135)

Acquire and preserve the Back River Conservation Area as passive open space. (p. 142)

Work with the Virginia Living Museum to sensitively permit sections of Grandview Nature Preserve for observation areas, a visitor's center, and educational facilities. (p. 142)

Continue negotiations with the White Marsh property owners to acquire the property for medium intensity recreational use. (p. 142)

#### **Planning Area Seven Community Facilities Recommendations**

Complete construction of Buckroe Park, and continue the emphasis of Buckroe Beach as the primary public beach in Hampton, complemented by public parking and coordinated residential development. (p. 146)

Continue beach nourishment program. (p. 146)

### **Housing**

Additional residential development in the area north of Marcella Road should not be single family. Because of the excellent access, proximity to jobs and services, and the lack of environmental constraints, this area should be developed with the highest densities in the city. (p. 171)

Area five represents one of the last opportunities in the city to attract high-value housing. The proximity of the Area to amenities such as the new golf course and the parks to be developed on the landfill and to new employment centers make it attractive. Its environmental features may also work in favor of more expensive housing. Some portions of the area, due to environmental constraints, may need larger lots for development. (p. 173)

### **Planning Area Five Housing Recommendations**

The four larger mobile home parks in the area may well need major renovation or replacement within the next 20 years. None meet current standards for design or open space, and they all contain a large number of older units. Two are not in appropriate locations for residential use, due to noise from Langley Air Force Base and NASA. (p. 175)

Use zoning changes necessitated by environmental constraints in the area to encourage larger lot development on environmentally sensitive land. This would include areas along Brick Kiln Creek and near Big Bethel Reservoir. (p. 175)

### **Planning Area Six Housing Recommendations**

Given the environmental constraints in Fox Hill and off Harris Creek Road, review zoning and use larger-lot zoning requirements. This would also reinforce the development of these area for housing aimed at the higher end of the market. (p. 179)

### **Environmental**

Recommended Policies (p. 191 – 192)

Preserve the water quality of the Chesapeake Bay and its tributaries. The Chesapeake Bay is probably the single most important natural feature in determining the City's quality of life and economic future. To preserve this asset the City will:

Require all development to address the issue of water quality through sensitive site planning and adequate methods of sewage disposal and treatment, and storm water management. Either individually on-site or jointly with other property owners and the City on an area-wide basis, measures must be taken to ensure that water quality is not harmed.

Require Planning Commission review of all proposed subdivisions for provisions to protect the natural environment. And for compliance with State and Federal environmental laws and regulations.

Modify the Zoning, Site Plan and Subdivision Ordinances and other ordinances as needed, to require appropriate and necessary measures to protect water quality.

Maintain and renovate the sanitary sewer and storm drainage systems in already developed parts of the City as needed. Major renovation and replacement shall be done in a manner which improves water quality.

In compliance with the Chesapeake Bay Preservation Act regulations, and to preserve the quality of surface water in the City, require all new development to occur at least one hundred feet from any of the following:

- a) tidal waters;
- b) tidal wetlands;
- c) tributary streams;
- d) non-tidal wetlands connected by surface water flow to tidal waters, tidal wetlands, or tributary streams.

In compliance with the Chesapeake Bay Preservation Act regulations and in order to preserve the quality of surface waters, require all redevelopment of land demonstrate an improvement of storm water runoff quality of at least ten percent.

Balance environmental restraints and development needs. Some environmental features pose threats to the public health and safety but lie in areas of strategic development significance. To achieve balance the City should:

Create a new zoning district for the flight approach area west of Langley Air Force Base which allows reasonable use of the land, while keeping the intensity of use at a safe level.

Allow only one low density residential or recreational use of lands in the flight approach area east of Langley Air Force Base.

Adopt the Primary Sand Dune Ordinance and prohibit development on or in front of the dune along Chesapeake Bay.

Acquire public land along all of Hampton's Chesapeake Bay shoreline through easement or outright purchase for protection from development and for public access to the shore.

Allow intense development along the Bay front only within a reasonable distance of the shore, taking into consideration flood and shoreline erosion hazards.

Protect the Big Bethel reservoir from water quality degradation. Big Bethel Reservoir provides the principal water supply to Langley Air Force Base and Fort Monroe. It should be protected by a Zoning Ordinance overlay district.

Require storm water management. Management of storm water quality and quantity is an increasing need. Existing problems need to be corrected and future ones avoided, as follows:

Develop storm water management plans for each major drainage basin. Where appropriate, these should be cooperatively developed with adjoining localities.

Create mechanisms to promote the resolution of drainage problems. Promote basin-wide solutions and discourage on-site, single purpose ones.

Recognize, identify and protect sensitive environmental features. The following steps should be taken:

Map tidal and non-tidal wetlands on large scale maps.

Conduct a soils survey to identify areas of hydric soils.

More thoroughly survey area of possible non-tidal wetlands.

Work with the Virginia Natural Heritage Program to identify rare species; recognize their habitats in planning efforts.

Incorporate environmentally sensitive lands and features into planning and land acquisition for public facilities. Where necessary and possible, acquire them through conservation easements or outright purchase.

Preserve existing mature trees in new developments. Existing ordinances do not adequately protect mature trees, which provide significant environmental and aesthetic benefits. There should be reasonable requirements to preserve them:

Change the various development ordinances to require reasonable tree preservation.

Protect and enhance water access. Very few locations provide boating access, particularly for industrial users. Available sites should be protected as follows:

Develop programs to retain existing water-dependent industrial sites on the waterfront. While these programs are meant to protect such sites from encroachment by incompatible users, they are not intended to promote encroachment by the industrial users into the surrounding residential or commercial areas.

Develop programs for recreational boating facilities similar to those provided for water-dependent industrial facilities.

Encourage further development of existing boat launching, docking and repair facilities, as long as they do not encroach into existing neighborhoods.

### **Urban Design**

#### **City-Wide Urban Design Recommendations (p. 239)**

Actively pursue opportunities to provide public access to the water.

Actively pursue opportunities to protect environmentally sensitive aquatic habitats.

Protect and enhance views and vistas to rivers, bays, creeks, lakes, and marshes.

Pursue opportunities to provide logical links between water-related public facilities.

Actively include appropriate water elements in public projects which enhance Hampton's image.

Actively develop and promote a program of activities which features the diversity of water-related environments in Hampton.

Develop programs to enhance and protect the image of the shorelines.

Encourage protection of naturally vegetated areas, especially within non-commercial areas where visibility is not essential.

#### **Planning Area One Urban Design Recommendations**

The natural elements of Chisman Lake and Williams Pit (Area Five) parks should guide any urban design decision for Planning Area One. (p. 244)

#### **Planning Area Two Urban Design Recommendations**

Utilize Newmarket Creek for public enjoyment. (p. 249)

Provide attractive paths to Newmarket Creek. (p. 250)

Reserve utility easements near Newmarket Creek for linear parks. (p. 250)



### **Planning Area Three Urban Design Recommendations**

Visually control edge treatments of the city's waterways. (p. 254)

Maintain views and access points to Downtown's water's edge. (p. 255)

Enhance public view of Hampton Roads from Chesapeake Avenue by improving the public parking areas. (p. 255)

Combine an historic walking tour with the waterfront walkway through similar treatments of pavement and street furniture. (p. 255)

### **Downtown Urban Design Recommendations**

Control scale to protect waterfront views and historical vistas, and to limit large scale/intensity uses to major activity nodes and landmark status uses. (p. 258)

Increase the amount and distribution of open space as relief from development and nodes for urban activity, with emphasis on public access to the waterfront. (p. 258)

Promote public views of the water. (p. 258)

Design a walkway linking the historic locations with the waterfront. (p. 258)

Design visual control to maintain water views from Interstate 64 and Settlers Landing Road. (p. 258)

Promote the waterfront parks as gathering places. (p. 258)

### **Planning Area Six Urban Design Recommendations**

Provide a network of nature trails and observation points throughout Grandview Nature Preserve. (p. 280)

Offer educational programs focusing on environmental issues at Grandview Nature Preserve. (p. 280)

Physically link Grandview Nature Preserve with Gosnolds Hope Park by implementing the proposed parkway routes on Little Back River Road, Harris Creek Road, Fox Hill Road, and Silver Isles Boulevard (extended). (p. 280)

Promote Grandview Nature Preserve, Gosnolds Hope Park, the White Marsh area and Grundland Creek Park as major centers for recreation. (p. 280)

## **Appendix B: 2000 Chesapeake Bay Agreement**

### **Related Regulatory Actions**

(Source: HRPDC)

## **Appendix B: 2000 Chesapeake Bay Agreement (C2K) Related Regulatory Actions Hampton Roads Planning District Commission**

### **Sanitary Sewer Overflows (SSO)**

The U.S. EPA is proposing to establish permit requirements under the Clean Water Act to reduce pollution from sanitary sewer overflows. Under the proposed rule, currently permitted sewage treatment facilities, such as those operated by the Hampton Roads Sanitation District (HRSD), will be required to develop a Capacity Assurance, Management, Operation, and Maintenance (CMOM) Program and be subject to increased overflow reporting requirements. In addition, the associated sanitary sewer collection systems operated by the local governments in Hampton Roads will be required to obtain a permit and comply with the CMOM and reporting requirements.

Developing a CMOM program entails conducting an evaluation of how well the existing infrastructure and sewage system management program meet prescribed EPA guidelines. A plan is then developed to correct any identified deficiencies and needed capital and management improvements. The plan specifies timelines and measures of program effectiveness, which the permitted party will be held accountable to. This proposed permit program is expected to greatly increase the operations and maintenance costs of managing a sewage collection system by requiring greater attention to replacement and repair of existing sewer lines owned by HRSD and local governments. A regional strategy for addressing the proposed regulations is being coordinated by the HRPDC.

#### **Critical Issues**

- Funding

### **Local Consistency with the Chesapeake Bay Preservation Act**

As more local comprehensive plans achieve consistency with Phase II of the regulations of the Chesapeake Bay Preservation Act (CBPA), the Chesapeake Bay Local Assistance Department (CBLAD) will begin moving towards requiring Phase III compliance. Phase III of the CBPA will require local governments to revise development standards contained within their ordinances to protect water quality. This may involve local governments changing their zoning and subdivision ordinances to require development activities to implement better site design or low impact development design features.

In addition, the Chesapeake Bay Local Assistance Board is in the process of amending the existing Bay Act regulations. The proposed amendments have generated controversy over the issues of buffer encroachments and overlapping requirements with other state environmental programs. CBLAD is currently examining the proposed amendments to see where changes can be made to address voiced concerns.

Concurrently, CBLAD is developing a program to begin conducting regular reviews of local programs. This review will be done through individual program implementation audits by CBLAD staff.

#### Critical Issues

- Relationship between state and local governments
- Additional resources required to implement local program changes to comply with CBPA amendments, Phase III CBPA implementation, and local program implementation reviews
- Overlap with review of local programs by other state agencies (CBPA, E&S, and DEQ and DCR Stormwater Programs)
- Differences in urban, suburban, and rural settings

#### **Local Consistency with the Virginia Erosion and Sediment Control Law**

Recently, the Virginia Department of Conservation and Recreation (DCR) has indicated its intent to begin regularly evaluating local erosion and sediment control programs for consistency with the Erosion and Sediment Control Law. A review of local programs by DCR consists of:

- a personal interview between DCR staff and the local program administrator;
- review of the local ordinance and other applicable documents;
- review of plans approved by the program;
- inspection of regulated activities; and
- review of enforcement actions.

Localities in the region scheduled for review in 2001 include the Cities of Chesapeake, Suffolk, and Norfolk. Increasing the number of consistent local programs is included as an implementation measure for Tributary Strategies and the Virginia Nonpoint Source Management Plan. Consistency is also being considered as a requirement for Phase II stormwater permit compliance (see below) and is already a requirement for Phase I stormwater permits.

#### Critical Issues

- Relationship between state and local government
- Additional resources required to comply with local E&S program reviews and achieve consistency
- Overlap with review of local programs by other state agencies (CBPA, E&S, and DEQ and DCR Stormwater Programs)

#### **Phase II Stormwater Regulations**

Appendix 6 of the Phase II Stormwater Regulations, as published in the Federal Register, automatically designates the following communities as regulated small MS4s: Gloucester County, James City County, City of Poquoson, City of Suffolk, City of Williamsburg, York County, and possibly Isle of Wight County. In addition, the

regulations allow states to designate additional communities, if it is deemed appropriate. The Phase II Stormwater Virginia Pollution Discharge Elimination System (VPDES) permit program is being developed by the State Water Control Board and will be administered by DEQ.

Under EPA's Phase II Stormwater Regulations, the local stormwater programs in these municipalities must satisfy six minimum control measures specified by EPA. If a local stormwater program properly implements these control measures, it is considered to be in compliance with the regulations. The six minimum control measures are:

- Public education and outreach on stormwater impacts
- Public involvement/Participation
- Illicit Discharge Detection and Elimination
- Construction site stormwater runoff control
- Post-construction stormwater management in new development and redevelopment
- Pollution prevention/good housekeeping for municipal operations

Required and recommended actions to comply with the minimum control measures are provided in Table 1. It is expected that existing local erosion and sediment control programs will satisfy the construction site runoff requirement and local stormwater and Chesapeake Bay Preservation Act programs will satisfy the post-construction runoff requirement. In addition, existing public notice requirements will satisfy the public involvement measure.

**Table 1. Required and Recommended Activities to Meet the Six Minimum Control Measures**

<b>Six Minimum Control Measures</b>	<b>Required and Recommended* Actions by EPA</b>
<b>1. Public education and outreach on stormwater impacts</b>	<ul style="list-style-type: none"> <li>• Brochures or fact sheets*</li> <li>• Speaking engagements*</li> <li>• Public service announcements*</li> <li>• Educational program in local schools*</li> <li>• Storm drain stenciling*</li> <li>• Community clean-up events*</li> </ul>
<b>2. Public Involvement/Participation</b>	<ul style="list-style-type: none"> <li>• Comply with state and local public notice requirements</li> <li>• Citizen stormwater committee*</li> <li>• Citizen volunteer opportunities*</li> </ul>
<b>3. Illicit Discharge Detection and Elimination</b>	<ul style="list-style-type: none"> <li>• Develop a map of storm sewer system, indicating outfall locations and receiving waters</li> <li>• Prohibit by law illicit discharges into the MS4</li> <li>• Develop and implement a plan to detect and address illicit discharges</li> <li>• Inform public employees, businesses, general public of hazards associated with illicit discharges</li> </ul>
<b>4. Construction site stormwater runoff control</b>	<ul style="list-style-type: none"> <li>• Adopt an ordinance that requires implementation of erosion and sediment controls on construction sites greater than 1 acre</li> <li>• The ordinance must also specify proper measures for controlling waste at a site, such as concrete truck washout, chemicals, litter, and sanitary waste</li> <li>• Have procedures for site plan review, inspection and enforcement, and public complaints</li> </ul>
<b>5. Post-construction stormwater management in new development and redevelopment</b>	<ul style="list-style-type: none"> <li>• Adopt an ordinance to address runoff from new development and redevelopment</li> <li>• Implement strategies with a combination of structural and/or non-structural BMPs</li> <li>• Ensure adequate long-term operation and maintenance of BMPs</li> </ul>
<b>6. Pollution prevention/good housekeeping for municipal operations</b>	<ul style="list-style-type: none"> <li>• Develop an Operations and Maintenance Program to prevent or reduce pollutant runoff from municipal operations</li> <li>• Provide municipal employee training to prevent and reduce stormwater pollution</li> </ul>

\* Optional activities suggested by EPA to meet the minimum measure

In addition, to the above requirements on local governments, construction sites greater than one acre will be required to obtain a VPDES permit. The current threshold is five acres. Regulated entities will have until March 2003 to obtain the required permits.

#### Critical Issues

- Resources required to implement local stormwater programs that comply with permit regulations
- Developers will have to show they are complying with locally administered stormwater programs to obtain a state permit; however, none of the state permit fee will go to local governments for the administration of their programs.
- Role of VDOT, universities, military, homeowners associations, and other owners of stormwater drainage systems
- Overlap and inconsistency with other related state programs (CBPA, E&S, and DCR Stormwater Program)

#### **Environmental Endpoints**

EPA, through the Chesapeake Bay Program, is currently developing environmental endpoints for the mainstem Chesapeake Bay and its tidal tributaries. These endpoints will provide the foundation for state water quality standards and TMDLs developed for these waters (Figure 1). The endpoints specify the dissolved oxygen, water clarity, and chlorophyll a levels necessary to restore the living resources of the Bay. Currently, EPA is developing an aquatic habitat classification system for the Bay and its tidal tributaries. Each classification will have its own environmental endpoints or water quality standards:

<b>Table 2. Proposed Aquatic Habitat Classifications and Water Quality Standards</b>	
<b>Classification</b>	<b>Standards to be Developed</b>
Migratory Spawning and Nursery Habitat	DO, Chlorophyll a
Shallow Water Habitat	DO, Chlorophyll a, Water Clarity
Open Water Habitat	DO, Chlorophyll a
Deep Water Habitat	DO
Deep Channel Habitat	DO

Once the standards are developed, models will be used to determine associated ambient nutrient and sediment levels needed to maintain the standards. By comparing these levels with existing nutrient and sediment loads, required nutrient and sediment reductions will be determined for the Bay and its tidal tributaries. From this analysis, nutrient and sediment loads will be allocated among the tributaries. This will result in the need to revise the various Tributary Strategies to reflect the allocations.



In addition, the state water quality standards will be revised to conform with the standards identified in the environmental endpoints analysis. When the state water quality standards are changed, this will also affect which waters are considered to be "impaired." In some cases, waters may be removed from the state's impaired waters list, and in other cases, waters may be added.

#### Critical Issues

- There are no classifications for degraded waters in urbanized areas that may never improve enough to support aquatic life.
- Which standard will a permitted discharge have to comply with if the discharge affects more than one classified aquatic habitat of the waterway, each of which has its own numerical standard?
- The endpoints that are ultimately chosen are going to determine the needed nutrient and sediment reductions required to avoid establishment of a regulatory TMDL for the Bay and its Tributaries. The endpoints will also be the basis for any future TMDL for the Bay and its Tributaries.
- Once state water quality standards are revised in 2003 to reflect endpoints does the effort cease to be "voluntary?"

#### **Nutrient and Sediment Criteria**

The Clean Water Action Plan, adopted in 1998 during the Clinton administration, presents a national strategy for improving water quality. The plan specifically identifies nutrient reduction and directs EPA to establish nutrient criteria that reflect the different types of water bodies and different ecoregions of the country. The plan also instructs EPA to assist states in adopting numeric water quality standards. EPA expects states to use these numeric standards in implementing point and nonpoint source pollution management programs through NPDES permit limits and total maximum daily loads (TMDLs).

The nutrient criteria for the Chesapeake Bay and its major tributaries are dependent on the outcome of the environmental endpoints study currently being developed by the EPA Region III Chesapeake Bay Program office (see description above). Once the endpoints are determined in the form of dissolved oxygen, water clarity, and chlorophyll a standards, the Chesapeake Bay Model will be used to determine the associated aquatic nutrient and sediment levels necessary to achieve and maintain those standards. These levels will be considered the nutrient and sediment criteria.

## **Total Maximum Daily Loads (TMDLs)**

Section 303(d) of the federal Clean Water Act requires states to identify waters that are not in compliance with water quality standards and place them on an impaired waters list. In order to bring the identified waters into compliance with water quality standards, the state must develop Total Maximum Daily Loads (TMDLs) for each listed water and for each pollutant causing the impairment. A TMDL specifies the greatest amount of a pollutant a waterbody can receive without violating water quality standards. Mathematically, a TMDL is expressed as:

$$\text{TMDL} = \text{Sum of WLAs} + \text{Sum of LAs} + \text{MOS}$$

Where:

WLAs = point source pollutant loads

LAs = nonpoint source pollutant loads.

MOS = margin of safety to account for uncertainties in the data.

The development of a TMDL begins with a study of the watershed of the impaired water in question. The study begins by collecting data on existing sources of pollution, such as point source discharges, different land uses, and natural sources of pollution. Using computer models, the study determines the relative contribution of each identified source to the observed water quality impairment. The model is then adjusted through a calibration process until the model output matches observed water quality monitoring data. Once the model has been calibrated, it is used to determine the effectiveness of possible pollution reduction efforts among the identified sources in achieving water quality standards. Several scenarios are developed, each depicting a different combination of pollutant reduction allocations among point and nonpoint sources that will restore and maintain the water quality standard.

After a pollution reduction scenario is chosen, an implementation plan is developed. The DEQ website claims that a TMDL is implemented through existing state and local programs. The point source component is implemented by modifying VPDES permit limits. Nonpoint source reductions are implemented through voluntary programs or existing state and local regulatory programs. Voluntary programs may include agricultural cost-share programs and Tributary Strategies. Nonpoint source regulatory programs may include the Chesapeake Bay Preservation Act, the Erosion and Sediment Control Program, and Phase I and Phase II VPDES MS4 permits. Once the TMDL and implementation plan is approved by the EPA and the State Water Control Board, it is incorporated into the appropriate basin-wide Water Quality Management Plan. If existing programs cannot achieve the TMDL, new regulatory programs may need to be developed.

In 2005 – 2006, EPA is to evaluate Virginia's progress in implementing TMDLs for Virginia's . Any needed BMPs need to be installed within five years of TMDL approval. Improvements or achievement of water quality standards need to be achieved within ten years. Future TMDLs scheduled for development in Hampton Roads are shown in Table 3 and Figure 2. The majority of the impairments are caused by fecal coliform bacteria and their sources are unknown.

**Table 3. Waters in Hampton Roads Scheduled for TMDL Development not Including Condemned Shellfish Waters. Source: DEQ**

Stream	City/County	Length (mi2)	Cause	Source	Due Date
Poquoson River	York	0.53	Fecal Coliform	Unknown	2006
Powhatan Creek	James City	0.26	Fecal Coliform	Unknown	2006
Brick Kiln Creek	Newport News	0.07	Fecal Coliform	Unknown	2006
New Market Creek	Hampton	0.05	Fecal Coliform	Unknown	2006
Pagan River	Smithfield	1.5	Fecal Coliform	Point Source	2008
Nansemond River	Suffolk	0.22	Fecal Coliform	Unknown	2008
Shingle Creek	Suffolk	0.1	Fecal Coliform	Unknown	2008
Broad Creek	Norfolk	0.35	Fecal Coliform	Unknown	2008
Eastern Branch Elizabeth River	Norfolk	0.6	Tributyltin	Port Activities	2008
Elizabeth River	Portsmouth/Norfolk	9.6	Tributyltin	Port Activities	2008
Southern Branch Elizabeth River	Chesapeake/Portsmouth	3	Tributyltin	Port Activities	2008
London Bridge Creek	Virginia Beach	0.05	Fecal Coliform	Unknown	2006
Thalia Creek	Virginia Beach	0.16	Fecal Coliform	Unknown	2006
West Neck Creek	Virginia Beach	1 mi	Fecal Coliform	Unknown	2006
Nawney Creek	Virginia Beach	0.12	Fecal Coliform	Unknown	2006

**Critical Issues:**

- Accuracy of models used to develop TMDLs and track the progress being made.
- What will local governments be required to do in implementing a TMDL and how will they be held accountable? How will they be involved in the process?
- Are basin-wide Water Quality Management Plans the same as Tributary Strategies plans? If not, who will develop them and how will they be developed?
- How will waters impaired by high levels of fecal coliform be dealt with?
- Funding

## **The Chesapeake Bay Agreement**

The several commitments in the 2000 Chesapeake Bay Agreement are not legally binding. However, there is one commitment that is linked to an existing regulatory TMDL deadline:

*By 2010, correct nutrient- and sediment-related problems in the Chesapeake Bay and its tidal tributaries sufficiently to remove the Bay and the tidal portions of its tributaries from the list of impaired waters under the Clean Water Act.*

The mainstem Chesapeake Bay and its tributaries were placed on Virginia's impaired waters list by EPA. EPA argued that due to high levels of nutrient and sediment loadings, these waters violated state standards for dissolved oxygen and/or use attainment by aquatic life. If water quality conditions do not meet state standards by 2010 through voluntary measures (Chesapeake Bay Agreement and Tributary Strategies), EPA will require a regulatory TMDL to be developed for these waters.

The Bay Agreement establishes the following milestones in an effort to de-list the mainstem Bay and its tidal tributaries:

- By 2001, define the water quality conditions necessary to protect living resources and then assign load reductions for nitrogen and phosphorus to each major tributary (determined by the environmental endpoints)
- By 2001, assign sediment load reductions to each Tributary necessary to achieve water quality conditions that protect aquatic living resources (determined by the environmental endpoints)
- By 2002, complete a public process to develop and begin implementation of revised Tributary Strategies to achieve and maintain assigned loading goals
- By 2003, adopt new or revised water quality standards for tidal waters consistent with defined water quality conditions.

These milestones and how they relate to other programs are illustrated in Figure 1.

In addition to the above, the commitments outlined in Table 4 were considered by the HRPDC Regional Stormwater, Chesapeake Bay Preservation Act, and Tributary Strategies Committees to potentially have a high impact on local governments.

**Table 4. 2000 Chesapeake Bay Agreement Commitments Considered to Have a High Impact on Local Governments.**

By 2002, revise SAV restoration goals and strategies to reflect historic abundance and 2010 water clarity goals. Strategies to achieve these goals will address water clarity, water quality and bottom disturbance.
By 2002, implement a SAV strategy in areas of critical importance to the Bay's living resources.
By 2010, develop & implement locally supported watershed management plans in 2/3 of the Bay watershed. These plans would address protection, conservation and restoration of stream corridors, riparian forest buffers and wetlands for the purposes of improving habitat and water quality, with collateral benefits for optimizing stream flow and water supply.
Achieve a no net loss of existing wetlands and function in the signatory state's regulatory program.
By 2010, achieve a net resource gain by restoring 25,000 acres of tidal and non-tidal wetlands. To do this, signatories commit to achieve and maintain an average restoration rate of 2,500 acres per year basin wide.
By 2010, as part of local watershed management plans, implement locally-based wetlands preservation plans in 25% of each state's land area. The plans would preserve key wetlands while addressing surrounding land use so as to preserve wetland functions.
Achieve and maintain the 40% nutrient reduction goal for the Chesapeake Bay, as well as goals adopted for the tributaries south of the Potomac River.
Through pollution prevention and voluntary measures, strive for zero release of chemical contaminants from point sources including air sources.
By 2010, eliminate mixing zones for persistent or bioaccumulative toxics.
Support restoration of the Anacostia River, Baltimore Harbor, & Elizabeth River
Strengthen programs for land acquisition and preservation. Permanently preserve 20% of the land area in the watershed by 2010.
By 2012, reduce the rate of harmful sprawl development of forest and agricultural land in the Chesapeake Bay watershed by 30% measured as an average over five years from the baseline of 1992-1997.
By 2005, in cooperation with local governments, identify and remove state and local impediments to low impact development designs.
By 2002, review tax policies that discourage sustainable development practices or encourage undesirable growth patterns.
By 2002, states to promote coordination of transportation & land use planning to minimize water quality impact.
By 2002, states to promote alternative (i.e., not cars) transportation modes
Use federal transportation statutes to protect resource lands and water quality.
With Local Governments, target small watersheds for restoration & protection
By 2001, reassess the Local Government Participation Action Plan.
Improve methods of communication with and among Local Governments

### Critical Issues

- Accuracy of models
- Is a voluntary commitment linked with a regulatory deadline really "voluntary?"
- Local government involvement and influence in meeting commitments
- Funding

### **State Nontidal Wetlands Program**

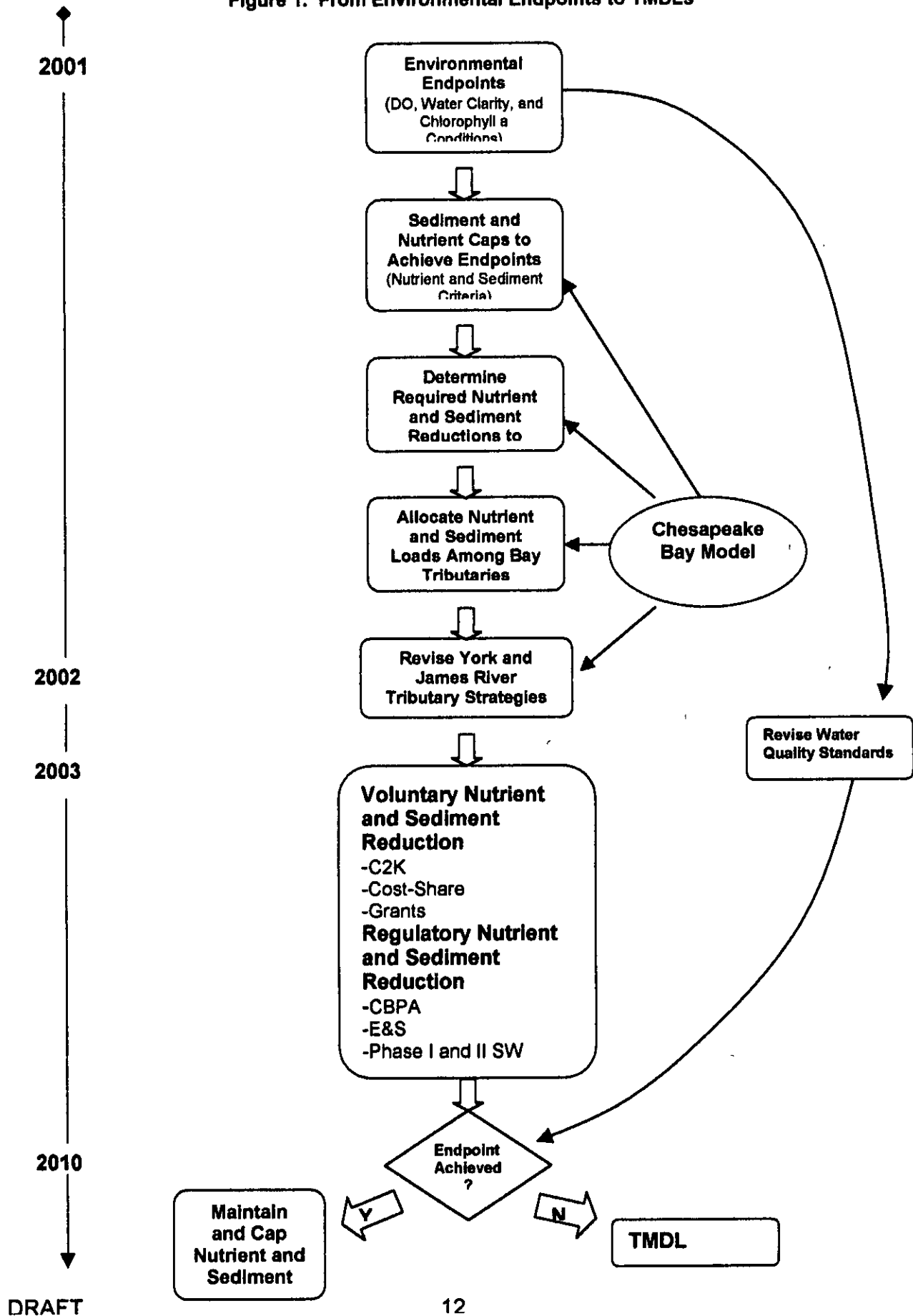
Until recently, activities in isolated non-tidal wetlands have been regulated by the federal wetlands permitting program administered by the Corps of Engineers. However, a series of court cases has limited federal jurisdiction over isolated non-tidal wetlands, leaving these features largely unprotected by any kind of regulation. While the courts have found that federal jurisdiction is limited, state jurisdiction is not. In response to these recent developments, several states, including Virginia, have been developing non-tidal wetlands permitting programs to replace the federal program that was lost. Virginia's non-tidal wetlands program is stricter than the previous federal program. The acreage thresholds are being reduced. Once Virginia's non-tidal wetlands law is enacted, only development activities up to two acres are eligible for a general permit. The thresholds for utility lines and transportation projects are one and two acres, respectively. For other activities, only those one-half acre or less are eligible for a general permit. These reduced thresholds will increase compliance costs at the state and local level. Virginia's non-tidal wetlands regulations take effect on August 1, 2001 for transportation projects and October 1, 2001 for all other activities.

### **Source Water Assessment Program**

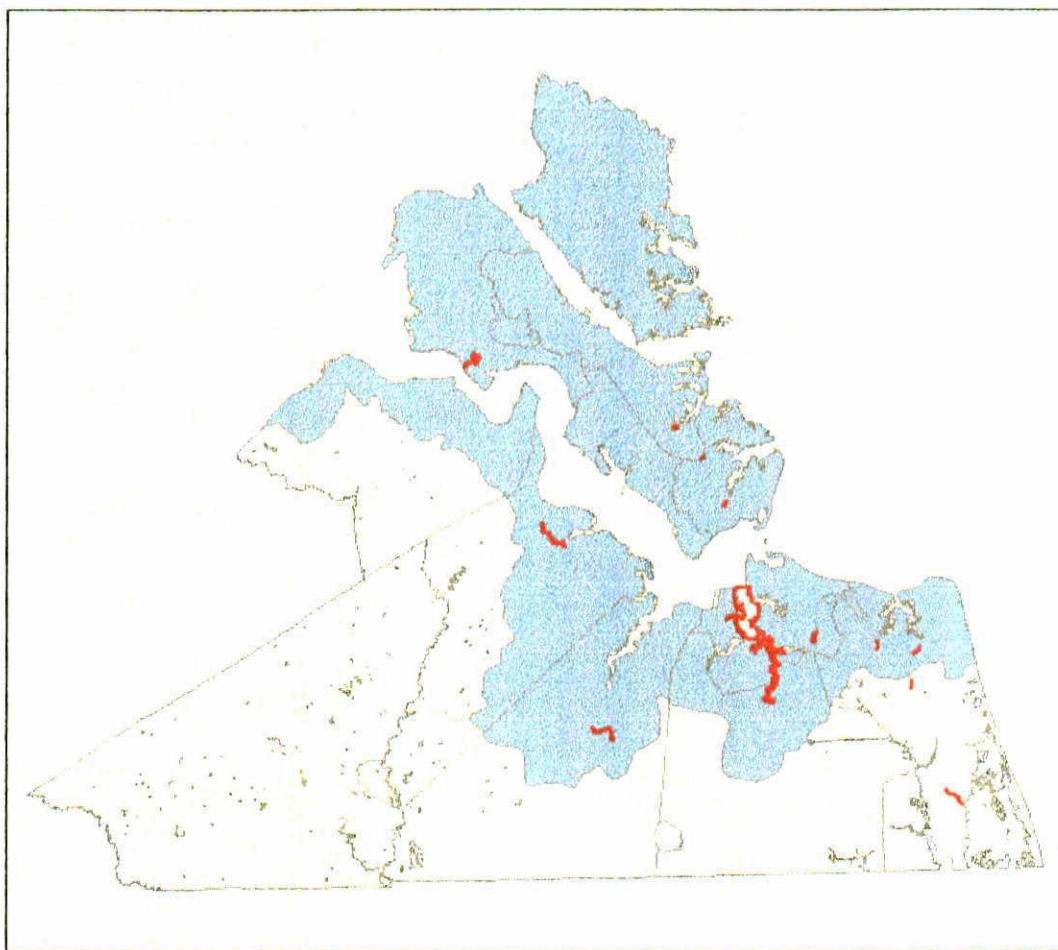
Amendments made to the Safe Drinking Water Act (SDWA) in 1996 requires the Virginia Department of Health to develop a Source Water Assessment Program (SWAP) for the state. The SWAP involves conducting an inventory of potential pollution threats to drinking water supplies in the state. The inventory involves identifying land use activities within the watersheds of all surface water supply reservoirs. The identified land uses are then assessed for their relative threats to water supply reservoirs. The SWAP inventory for the Hampton Roads region is being coordinated through the Hampton Roads Planning District Commission.

As a result of the inventory conducted under SWAP, changes in local land use policies can be expected. These policies may target areas that pose a relatively high threat to drinking water supplies for increased educational efforts, development controls, stormwater controls and land acquisition, all of which will require additional funding. In addition, land use decisions within watersheds of water supply reservoirs will integrate greater involvement by local public utilities and health departments.

Figure 1. From Environmental Endpoints to TMDLs







**Figure 2. Impaired Waters in Hampton Roads Scheduled for TMDL Development**



**LEGEND**

- TMDLs
- Bay Watershed
- HRPDC

SOURCE: VA BDD - TRC

Note: Map does not include the James and York Rivers and mainstem Chesapeake Bay, which are also considered impaired.



10 0 10 20 Miles



**Appendix C: 2000 Chesapeake Bay Agreement**

**Sound Land Use Goal and Commitments**



Chesapeake Bay Program  
*A Watershed Partnership*

# CHESAPEAKE 2000

## PREAMBLE

The Chesapeake Bay is North America's largest and most biologically diverse estuary, home to more than 3,600 species of plants, fish and animals. For more than 300 years, the Bay and its tributaries have sustained the region's economy and defined its traditions and culture. It is a resource of extraordinary productivity, worthy of the highest levels of protection and restoration.

Accordingly, in 1983 and 1987, the states of Virginia, Maryland, Pennsylvania, the District of Columbia, the Chesapeake Bay Commission and the U.S. Environmental Protection Agency, representing the federal government, signed historic agreements that established the Chesapeake Bay Program partnership to protect and restore the Chesapeake Bay's ecosystem.

For almost two decades, we, the signatories to these agreements, have worked together as stewards to ensure the public's right to clean water and a healthy and productive resource. We have sought to protect the health of the public that uses the Bay and consumes its bounty. The initiatives we have pursued have been deliberate and have produced significant results in the health and productivity of the Bay's main stem, the tributaries, and the natural land and water ecosystems that compose the Chesapeake Bay watershed.

While the individual and collective accomplishments of our efforts have been significant, even greater effort will be required to address the enormous challenges that lie ahead. Increased population and development within the watershed have created ever-greater challenges for us in the Bay's restoration. These challenges are further complicated by the dynamic nature of the Bay and the ever-changing global ecosystem with which it interacts.

In order to achieve our existing goals and meet the challenges that lie ahead, we must reaffirm our partnership and recommit to fulfilling the public responsibility we undertook almost two decades ago. We must manage for the future. We must have a vision for our desired destiny and put programs into place that will secure it.

To do this, there can be no greater goal in this recommitment than to engage everyone — individuals, businesses, schools and universities, communities and governments — in our effort. We must encourage all citizens of the Chesapeake Bay watershed to work toward a shared vision — a system with abundant, diverse populations of living resources, fed by healthy streams and rivers, sustaining strong local and regional economies, and our unique quality of life.

In affirming our recommitment through this new *Chesapeake 2000*, we recognize the importance of viewing this document in its entirety with no single part taken in isolation of the others. This Agreement reflects the Bay's complexity in that each action we take, like the elements of the Bay itself, is connected to all the others. This Agreement responds to the problems facing this magnificent ecosystem in a

comprehensive, multifaceted way.

**By this Agreement**, we commit ourselves to nurture and sustain a Chesapeake Bay Watershed Partnership and to achieve the goals set forth in the subsequent sections. Without such a partnership, future challenges will not be met. With it, the restoration and protection of the Chesapeake Bay will be ensured for generations to come.

**W**e commit to:

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## SOUND LAND USE

In 1987, the signatories agreed that "there is a clear correlation between population growth and associated development and environmental degradation in the Chesapeake Bay system." This Agreement reaffirms that concept and recognizes that more must be done.

An additional three million people are expected to settle in the watershed by 2020. This growth could potentially eclipse the nutrient reduction and habitat protection gains of the past. Therefore it is critical that we consider our approaches to land use in order to ensure progress in protecting the Bay and its local watersheds.

Enhancing, or even maintaining, the quality of the Bay while accommodating growth will frequently involve difficult choices. It will require a renewed commitment to appropriate development standards. The signatories will assert the full measure of their authority to limit and mitigate the potential adverse effects of continued growth; each however, will pursue this objective within the framework of its own historic, existing or future land use practices or processes. Local jurisdictions have been delegated authority over many decisions regarding growth and development which have both direct and indirect effects on the Chesapeake Bay system and its living resources. The role of local governments in the Bay's restoration and protection effort will be given proper recognition and support through state and federal resources. States will also engage in active partnerships with local governments in managing growth and development in ways that support the following goal.

We acknowledge that future development will be sustainable only if we protect our natural and rural resource land, limit impervious surfaces and concentrate new growth in existing population centers or suitable areas served by appropriate infrastructure. We will work to integrate environmental, community and economic goals by promoting more environmentally sensitive forms of development. We will also strive to coordinate land-use, transportation, water and sewer and other infrastructure planning so that funding and policies at all levels of government do not contribute to poorly planned growth and development or degrade local water quality and habitat. We will advance these policies by creating partnerships with local governments to protect our communities and to discharge our duties as trustees in the stewardship of the Chesapeake Bay. Finally, we will report every two years on our progress in achieving our commitments to promote sound land use.

## **GOAL**

Develop, promote and achieve sound land use practices which protect and restore watershed resources and water quality, maintain reduced pollutant loadings for the Bay and its tributaries, and restore and preserve aquatic living resources.

### **Land Conservation**

- By 2001, complete an assessment of the Bay's resource lands including forests and farms, emphasizing their role in the protection of water quality and critical habitats, as well as cultural and economic viability.
- Provide financial assistance or new revenue sources to expand the use of voluntary and market-based mechanisms such as easements, purchase or transfer of development rights and other approaches to protect and preserve natural resource lands.
- Strengthen programs for land acquisition and preservation within each state that are supported by funding and target the most valued lands for protection. Permanently preserve from development 20 percent of the land area in the watershed by 2010.
- Provide technical and financial assistance to local governments to plan for or revise plans, ordinances and subdivision regulations to provide for the conservation and sustainable use of the forest and agricultural lands.
- In cooperation with local governments, develop and maintain in each jurisdiction a strong GIS system to track the preservation of resource lands and support the implementation of sound land use practices.

## **Development, Redevelopment and Revitalization**

- By 2012, reduce the rate of harmful sprawl development of forest and agricultural land in the Chesapeake Bay watershed by 30 percent measured as an average over five years from the baseline of 1992-1997, with measures and progress reported regularly to the Chesapeake Executive Council.
- By 2005, in cooperation with local government, identify and remove state and local impediments to low impact development designs to encourage the use of such approaches and minimize water quality impacts.
- Work with communities and local governments to encourage sound land use planning and practices that address the impacts of growth, development and transportation on the watershed.
- By 2002, review tax policies to identify elements which discourage sustainable development practices or encourage undesirable growth patterns. Promote the modification of such policies and the creation of tax incentives which promote the conservation of resource lands and encourage investments consistent with sound growth management principles.
- The jurisdictions will promote redevelopment and remove barriers to investment in underutilized urban, suburban and rural communities by working with localities and development interests.
- By 2002, develop analytical tools that will allow local governments and communities to conduct watershed-based assessment of the impacts of growth, development and transportation decisions.
- By 2002, compile information and guidelines to assist local governments and communities to promote ecologically-based designs in order to limit impervious cover in undeveloped and moderately developed watersheds and reduce the impact of impervious cover in highly developed watersheds.
- Provide information to the development community and others so they may champion the application of sound land use practices.
- By 2003, work with local governments and communities to develop land-use management and water resource protection approaches that encourage the concentration of new residential development in areas supported by adequate water resources and infrastructure to minimize impacts on water quality.
- By 2004, the jurisdictions will evaluate local implementation of stormwater, erosion control and other locally-implemented water quality protection programs that affect the Bay system and ensure that these programs are being coordinated and applied effectively in order to minimize the impacts of development.
- Working with local governments and others, develop and promote wastewater treatment options, such as nutrient reducing septic systems, which protect public health and minimize impacts to the Bay's resources.
- Strengthen brownfield redevelopment. By 2010, rehabilitate and restore 1,050 brownfield sites to productive use.
- Working with local governments, encourage the development and implementation of emerging urban storm water retrofit practices to improve their water quantity and quality function.

## **Transportation**

## Chesapeake 2000 Bay Agreement

- By 2002, the signatory jurisdictions will promote coordination of transportation and land use planning to encourage compact, mixed use development patterns, revitalization in existing communities and transportation strategies that minimize adverse effects on the Bay and its tributaries.
- By 2002, each state will coordinate its transportation policies and programs to reduce the dependence on automobiles by incorporating travel alternatives such as telework, pedestrian, bicycle and transit options, as appropriate, in the design of projects so as to increase the availability of alternative modes of travel as measured by increased use of those alternatives.
- Consider the provisions of the federal transportation statutes for opportunities to purchase easements to preserve resource lands adjacent to rights of way and special efforts for stormwater management on both new and rehabilitation projects.
- Establish policies and incentives which encourage the use of clean vehicle and other transportation technologies that reduce emissions.

### **Public Access**

- By 2010, expand by 30 percent the system of public access points to the Bay, its tributaries and related resource sites in an environmentally sensitive manner by working with state and federal agencies, local governments and stakeholder organizations.
  - By 2005, increase the number of designated water trails in the Chesapeake Bay region by 500 miles.
  - Enhance interpretation materials that promote stewardship at natural, recreational, historical and cultural public access points within the Chesapeake Bay watershed.
  - By 2003, develop partnerships with at least 30 sites to enhance place-based interpretation of Bay-related resources and themes and stimulate volunteer involvement in resource restoration and conservation.
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## Appendix D: Definition of Terms

***biodiversity*** (page 4) – a measure of the diversity or numbers of different species within a natural system such as a lake or stream.

***brownfields*** (page 4) – abandoned, idled or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental (e.g. soil and water) contamination.

***development rights*** (page 4) – the difference between the development actually on a property and the total development that would be allowed on the property under current zoning regulations.

***environmental justice*** (page 4) – the fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies. Concern that minority populations and/or low-income populations bear a disproportionate amount of the adverse health and environmental effects from pollution.

***greenways*** (page 4) – linear strips of land that are preserved as open space and often used for passive recreation, pedestrian or bicycle trails.

***impervious surfaces*** (page 3) – ground surfaces covered by buildings, pavement, compacted soil, or other surfaces that prevent the infiltration of rain fall.

***in-fill development*** (page 4) – land development that occurs on a parcel or tract of land that is surrounded by other urban type land uses.

***inflow and infiltration*** (page 5) – rain fall and groundwater that enters the sanitary sewer lines causing overflows or leakage of untreated waste water.